

CLAIMS

What is claimed is:

1. A method to pre-compile configuration information for a network connection device, the method including:
 - receiving a rule file defining behavioral requirements for the network connection device;
 - receiving an operations file describing operations supported by a plurality of components of the network connection device; and
 - generating a rule program, executable by the network connection device, utilizing the rule file and the operations file,wherein the rule program comprises a set of operations, selected from operations supported by the plurality of components of the network connection device, for performance by the respective components of the network connection device in accordance with the behavioral requirements defined by the rule file.
2. The method of claim 1 wherein the rule file comprises a decision tree structure.

3. The method of claim 2 wherein the rule file comprises a sequence of operations defined as IF THEN ELSE statements.
4. The method of claim 1 wherein the rule file comprises a text file.
5. The method of claim 1 wherein the operations file includes a plurality of sections, each section of the plurality of sections describing operations supported by a corresponding component of the plurality of components.
6. The method of claim 1 wherein the operations file specifies at least one process to identify a behavior and at least one context to identify a data environment to support execution of the rule program.
7. The method of claim 1 wherein the rule program is compiled as a binary object.
8. The method of claim 7 wherein the compiled binary object comprises an instruction sequence to be executed by a virtual machine hosted by the network connection device.
9. The method of claim 1 wherein the set of operations that comprise the rule program include configuration operations that determine functioning the plurality of components of the network connection device.

10. The method of claim 1 wherein the rule program links an operation of a component to a contextualized set of data.

11. The method of claim 1 wherein the rule program is authenticated by an authentication authority.

12. The method of claim 1 wherein at least a portion of the rule program is dedicated to a specific process and context, and wherein the generating of the rule program includes performing a check to determine whether a component and an operation associated with the portion of the rule program are compatible with a declared process and context of the portion of the rule program.

13. The method of claim 1 wherein the generating of the rule program includes compiling the rule program and loading the rule program into the network connection device in a manner independent of a run-time management program.

14. The method of claim 1 including executing the rule program utilizing the plurality of components of the network connection device.

15. The method of claim 14 wherein each component of the plurality of components of the network connection device registers at least one operation, and

the method includes performing a consistency check between the set of operations and the operations registered by the plurality of components.

16. A system to pre-compile configuration information for a network connection device, the system including:

a rule file defining behavioral requirements for the network connection device;

an operations file describing operations supported by a plurality of components of the network connection device; and

a compiler to generate a rule program, executable by the network connection device, utilizing the rule file and the operations file,

wherein the rule program comprises a set of operations, selected from operations supported by the plurality of components of the network connection device, for performance by the respective components of the network connection device in accordance with the behavioral requirements defined by the rule file.

17. The system of claim 16 wherein the rule file comprises a decision tree structure.

18. The system of claim 17 wherein the rule file comprises a sequence of operations defined as IF THEN ELSE statements.

19. The system of claim 16 wherein the rule file comprises a text file.

20. The system of claim 16 wherein the operations file includes a plurality of sections, each section of the plurality of sections describing operations supported by a corresponding component of the plurality of components of the network connection device.

21. The system of claim 16 wherein the operations file specifies at least one process to identify a behavior and at least one context to identify a data environment to support execution of the rule program.

22. The system of claim 16 wherein the compiler is to compile the rule program as a compiled binary object.

23. The system of claim 22 wherein the compiled binary object comprises an instruction sequence to be executed by a virtual machine hosted by the network connection device.

24. The system of claim 16 wherein the set of operations that comprise the rule program include configuration operations that determine functioning the plurality of components of the network connection device.

25. The system of claim 16 wherein the rule program links an operation of a component to a contextualized set of data.

26. The system of claim 16 wherein the rule program is authenticated by an authentication authority.

27. The system of claim 16 wherein at least a portion of the rule program is dedicated to a specific process and context, and wherein the compiler performs a check to determine whether a component and an operation associated with the portion of the rule program are compatible with a declared process and context of the portion of the rule program.

28. The system of claim 16 wherein the compiler is to compile the rule program and to load the rule program into the network connection device in a manner independent of a run-time management program.

29. A system to pre-compile configuration information for a network connection device, the system including:

first means for defining behavioral requirements for the network connection device;

second means for describing operations supported by a plurality of components of the network connection device; and

third means for generating a rule program, executable by the network connection device, utilizing the first means and the second means,

wherein the rule program comprises a set of operations, selected from operations supported by the plurality of components of the network connection device, for performance by the respective components of the network connection device in accordance with the behavioral requirements defined by the first means.

30. A machine-readable medium storing a sequence of instructions that, when executed by a machine, cause the machine to perform the method for pre-pre-compiling configuration information for a network connection device, the method including:

accessing a rule file defining behavioral requirements for the network connection device;

accessing an operations file describing operations supported by a plurality of components of the network connection device; and

generating a rule program, executable by the network connection device, utilizing the rule file and the operations file,

wherein the rule program comprises a set of operations, selected from operations supported by the plurality of components of the network connection device, for performance by the respective components of the network connection device in accordance with the behavioral requirements defined by the rule file.